What is the WV Save Our Streams Program?

West Virginia Save Our Streams is a volunteer monitoring program that trains citizen scientists, how to monitor and become watchdogs over their local wadeable streams and rivers. The program uses a bioassessment approach, which involves the collection and assessment of the benthic macro-invertebrates (visible bottom-dwelling invertebrates) and an evaluation of the stream or river's basic physiochemical conditions.

The biological integrity is assessed by calculating a variety of metrics, which are used to assign a score and rating to the station. The biological, physical, chemical data collected provides the volunteer with enough information to make a general assessment of their stream station. By monitoring additional stations, volunteers' can make a general assessment of the health of their watershed.

The program coordinator provides the training, basic equipment, reference manuals and survey forms necessary to complete the survey. The survey stations are usually chosen by the volunteer monitoring group, but the coordinator may be able to make recommendations. To get involved, a monitoring workshop should be scheduled.

The stream monitoring workshop

Volunteers can gain the knowledge and tools necessary to begin their own monitoring program by first participating in a stream monitoring workshop. During the workshop, participants are introduced to the basic concepts of stream-monitoring. Also, the procedures are demonstrated through hands-on training at a streamside location and usually a survey is completed by the participants. Reference materials are provided to all who participate. The typical workshop schedule is provided below:

Description	**Estimated times**	
1. Introductions and sign-in	9:30 – 9:45	15 minutes
2. Review hand-out materials	9:45 – 10:15	30 – 45 minutes
3. Discuss concepts reinforce with hands-on activities	10:15 – 11:45	1 – 1 ½ hours
4. Lunch break	11:45 – 12:30	30 – 45 minutes
5. Field work (not including travel time)	12:30 – 4:00	3 – 3 ½ hours
6. Wrap-up and certification	4:00 – 4:30	30 – 45 minutes

- **What to wear**: Come prepared for outside work with items such as a hat, loose fitting clothes (especially during warmer weather), closed toed shoes such as sneakers, boots or waders (WV Save Our Streams does not provide waders or boots). The outside conditions should determine your overall manner of dress. You should also have plenty of water, sunscreen and insect repellent.
- **What to bring**: Bag lunch and beverages; also, you may need a pencil or pen and a small notebook

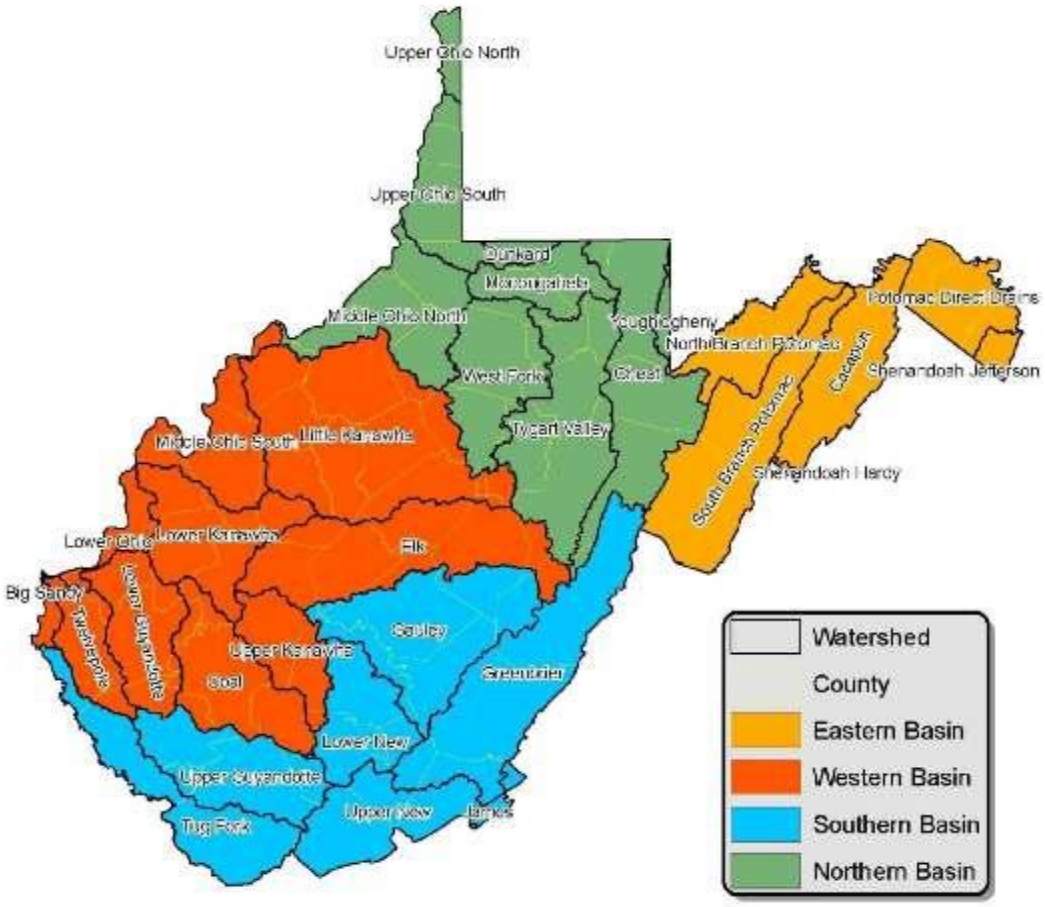
Note: A minimum of six persons are needed in order to schedule a workshop and there may be a limit to the maximum number that can attend.

Scheduling a monitoring workshop

In order to more efficiently cover the entire state the coordinator has divided the state into districts. The program will schedule three workshops in each district. Workshops are scheduled based upon request; however, if a district is not covered, the coordinator will attempt to schedule a workshop for that area. The training season usually begins in late March or early April and continues through late October or early November of each year.

The schedule is subject to change based upon the coordinators availability due to other job responsibilities, weather and other factors. In some cases the number of workshops per month may be modified.

Note: March and November workshops are rare.



The workshop schedule does not include short presentations or demonstrations, planning meetings; follow-up visits with existing or new monitoring groups, re-certification, advanced workshops, special projects or other workshops that may be schedule at the coordinators discretion. At a minimum, 12 workshops will be schedule each year.

A workshop schedule is posted on the program's website. This schedule will be updated as necessary when workshops are scheduled or when changes to the schedule occur. If you are interested in attending a workshop in your area, you should check the programs calendar on a regular basis. The workshop schedule may also be provided through press releases, Internet list services, newsletters or other print and electronic mediums.

Registration

On-line registration is available for persons wanting to participate in a stream monitoring workshop. You may also contact either the person(s) hosting the event or the coordinator to register. Please try to register at least two business days prior to a workshop. In some cases the number of participants may be limited so the earlier registrants will receive priority in those circumstances. If there is a change due to weather conditions or other reasons the coordinator will contact persons that have registered to let them know about the changes. If you do not register, you will not be contacted. If you prefer not to complete the on-line form please call (304) 926-0499 Ext. 1710; leave a voice-mail message providing your name, affiliation, phone number, Email address and the date of the workshop you are planning to attend.

Volunteer monitor certification

After the workshop, participants are encouraged to become certified monitors pursuant to 22-11-13 of the West Virginia Code, by completing the program's certification test. Testing is often completed as a group following the workshop or it can be completed individually. It is an open book open discussion format when completed as a group.

The coordinator reviews the tests and provides a certificate of completion, which expires in one-year from the date of completion. Re-certification is required after one-year and every other year thereafter. Re-certification involves testing and a field review of the volunteer monitoring group's procedures.

Bioassessment equipment

Certified volunteers are eligible to receive basic equipment if they agree to the terms and conditions of the memorandum of understanding. Most of the basic equipment is provided at no charge; however charges may apply in certain circumstances. Additional equipment may be loaned to certified monitoring groups for short time periods. Note: The program currently does not charge for stream monitoring workshops or travel expenses.

The equipment you use depends upon the goals and objectives of your monitoring study plan. Think carefully about the why, what, where, when and how questions, and consider the quality assurance and quality control (QAQC) measures that are necessary to insure accuracy and precision. Your approach should be similar to the scientific method. The questions you ask, the methods you choose, and the way the data is analyzed and checked should be written into your study design. It's worth taking the time to figure out what you want to do. Your monitoring is much more likely to be successful and sustainable over a longer time, with the right plan.

WV Save Our Streams does not provide chemical kits, nor can the program pay for laboratory analysis. However, the program has recently purchased several custom **LaMotte water quality kits**, and can work with the monitoring group to perform a more thorough chemical analysis of their stations. These kits are only available while working with the coordinator or with one of WVDEP's Nonpoint Source Program's Basin Coordinators. Since there are a limited number of kits, they cannot be loaned or donated to the group unless there is a specific need such as a special study or project. In those cases the volunteer group must show reason for using the kit by providing a description of the project proposal. The kits are used at the discretion of the coordinator. The kit can be purchased through the LaMotte Company; E-mail the coordinator for more information.

The stream survey

Volunteer monitors have a choice of the survey data sheets based upon their level of experience and the thoroughness of the information they wish to collect. For more information, read the Standard Operating Procedures for the survey level you are using.

The steps of the basic level-one survey are as follows:

1. Determine your stream-reach boundary; this is a stream length up to 100-meters, which may be more or less under certain circumstances.
2. Near the lower end of the reach (in the deepest portion of the run), collect water samples and analyze using the chemical tests you have available. You may use your collection container to observe watercolor and clarity and to determine water odors.
3. Measure the width-depth and velocity, and estimate the water level.
4. Using a kick-net, collect a minimum of three benthic macroinvertebrate samples from the best riffle or runs within your stream reach. Use the tally sheet to record information about your collections. (The collections should be combined before they are assessed)
5. Evaluate the physical and habitat conditions; record information about known land use activities.
6. Sketch your reach or submit photographs with the survey, and add any other comments that you feel are important for evaluating the conditions of your stream study site.

Quality assurance reviews

LEVEL ONE STREAM SURVEY REPORT

Stream name: ELK RIVER — Basin: ELK RIVER
Monitoring group: WEBSTER CONTY HS (9TH GRADE SCIENCE CLASS) — Station name:
County: WEBSTER — Latitude: 38 28 39 — Longitude: 80 24 49
Survey date: 09/12/2008 — Directions: BAKER ISLAND PARK, JUST OFF RT. 20 IN WEBSTER SPRINGS
Database code: — RR miles:

WATER CHEMISTRY

		Units
Temperature (C/F)	20	C
pH	8.1	
Conductivity		
Dissolved Oxygen	8.0	PPM
Nitrate/Nitrite	0.5	PPM
Alkalinity		
Acidity		
Turbidity	< 10	JTU
Bacteria (Fecal/E-coli)		

Other (Describe and record the results below)

PHYSICAL CONDITIONS

Run width ft	15	Run depth ft	0.5
Riffle width ft	19	Riffle depth ft	0.9
Pool width ft	27	Pool depth ft	1.9

Water level	LOW
Discharge (cfs)	17.9
Water clarity	CLEAR
Water color	
Water/Sediment odor	FISHY / NONE
Sediment color	BROWN
Surface foam	SLIGHT
Algae color	BROWN/DARK GREEN
Algae abundance	MODERATE
Algae texture	HAIRY/EVEN COAT
Channel shade	POOR

COMPOSITION

	Estimate	X	Count
Silt/clay			
Sand	10		
Gravel	45		
Cobble	30		
Boulder	15		
Bedrock			
Woody debris			
Index			

Evaluate the streambed composition using a PEBBLE COUNT procedure whenever possible, or simply estimate the percentages.

HABITAT CONDITIONS

Sediment deposition	6	
Embeddedness	5	
	Left	Right
Bank stability	4	3
Riparian buffer width	1	1
Total score	19	

LAND USE CONDITIONS

RECREATION	3	S	BRIDGES	2	S			
RESIDENTIAL	2	M						
PARKING LOTS	2	S						
PAVED ROADS	2	S						

BENTHIC MACROINVERTEBRATES

		Abundance	Taxa
1.	Mayflies	3	4
2.	Stoneflies	3	3
3.	Case-building caddisflies	1	1
4.	Net-spinning caddisflies	3	1
5.	Free-living caddisfly		
6.	Common netspinner	3	1
7.	Dragonflies	3	1
8.	Damselflies		
9.	Riffle beetle	1	1
10.	Water penny	3	1
11.	Other Beetles/Bugs		
12.	Hellgrammite/Fishfly	3	1
13.	Alderfly		
14.	Non-biting midge	3	1
15.	Black fly		
16.	Crane fly		
17.	Watersnipe fly	3	1
18.	Other True flies		
19.	Water mite		
20.	Crayfish	6	1
21.	Scud/Sideswimmer		
22.	Aquatic sowbug		
23.	Clams		
24.	Mussel		
25.	Operculate snails		
26.	Non-operculate snails		
27.	Aquatic worms	1	1
28.	Leeches		
29.	Flatworms		
Other			
	TOTALS	36	18

List other aquatic animals collected or observed

SEVERAL KINDS OF SHINERS AND DARTERS AND (CAMBARUS ELKENSIS)

Habitat and physical condition comments

PARK IS WELL MAINTANIED (MOWED) RIPARIAN AREA IS NOT ALLOWED TO DEVELOP

BIOLOGICAL INTEGRITY

		Value	Points
1.	Total Taxa	18	8
2.	EPT Taxa	10	8
3.	Biotic Index	4.22	8
	Stream score	24	
	Integrity Rating	SUBOPTIMAL	

Additional comments: THE HIGH QUALITY OF THIS RIVER STILL SHOWS EVEN IN AN AREA THAT IS HIGHLY USED

All volunteer surveys are evaluated by the program coordinator. These evaluations occur throughout the year, but not as often during the workshop training season. Volunteer monitors must mail the original survey data sheet(s) or a clear copy, and keep a copy for their own records. The review process involves the following:

1. General review of the physical and habitat condition checks and comments.
2. Re-calculation of any math that may be required.
3. Thorough evaluation of the macroinvertebrate collections and an assessment of the community using metrics appropriate to the survey level.

After the review is complete the coordinator returns the survey that was received along with a summary data sheet and a letter or comments where appropriate. To receive additional survey data sheets, the volunteer monitor needs to make a written request. The summary data is entered into the Volunteer Assessment Database (VAD), which is used for program reports, public information and outreach, and for assisting other sections of WVDEP with the overall characterization of our state's waters.

West Virginia Department of Environmental Protection
Save Our Streams Program
601 57th Street, SE
Charleston, WV 25304

Office: (304) 926-0499 Ext. 1710
E-mail: Glenn.R.Nelson@wv.gov
Website: http://www.dep.wv.gov/sos

"Unless someone like you cares a whole awful lot, nothing is going to get better. It's not!" – The Lorax